

**STUDY GUIDE FOR chapter 4**

*This is not an exhaustive review of information you have learned. It is a set of questions that sample from the various topics we have covered. If you can reasonably answer all these questions, you appear to have a good grasp of the information, and you should do well. If you cannot, look up any information you are missing, and come to the review session.*

**CHAPTER 4 Neurotransmitters and Psychopharmacology**

1. What is a drug? How can it get into the nervous system?
2. What are the possible routes of administration of a drug?
3. Compare agonist and antagonist drugs.
4. Describe competitive, noncompetitive, and irreversible antagonists.
5. What is meant by the therapeutic index (LD50/ED50)?
6. Distinguish drug sensitization from drug tolerance.
7. Describe the 7 mechanisms of agonistic action and 7 mechanisms of antagonistic action. (Hint: what are the functional mechanisms of these classes of drugs?) Give some examples.
8. List the known neurotransmitters and neuromodulators discussed in class and explain the reason for the distinguishing nomenclature of the two.
9. Name 3 catecholamines.
10. How are monoamine neurotransmitters subdivided?
11. Name 4 amino acid neurotransmitters.
12. Name one gas neurotransmitter. How does it function?
13. How are neuropeptides classified?
14. Name the endogenous neurotransmitter system that heroin emulates?
15. Name the endogenous neurotransmitter system that marijuana (i.e., THC) emulates?
16. At what receptors do barbiturates, alcohol, and anesthetics act?
17. What is the most numerous excitatory neurotransmitter in the brain?
18. What is the most numerous inhibitory neurotransmitter in the brain?
19. Define nicotinic and muscarinic acetylcholine receptors.
20. Distinguish between inhibitory and excitatory neurotransmitters.
21. Which neurotransmitter serves mostly as a hormone (secreted by the adrenal medulla) and has only limited function as neurotransmitter in the brain?
22. Define SSRI and MAO-I
23. Compare NMDA, AMPA, and kainate receptors.
24. How do lipid-derived substances work as a neurotransmitter?
25. How are psychoactive drugs classified? Give a general overview of each.